

## Variant that emerged in parallel with vaccines poses a different kind of COVID-19 threat, experts warn

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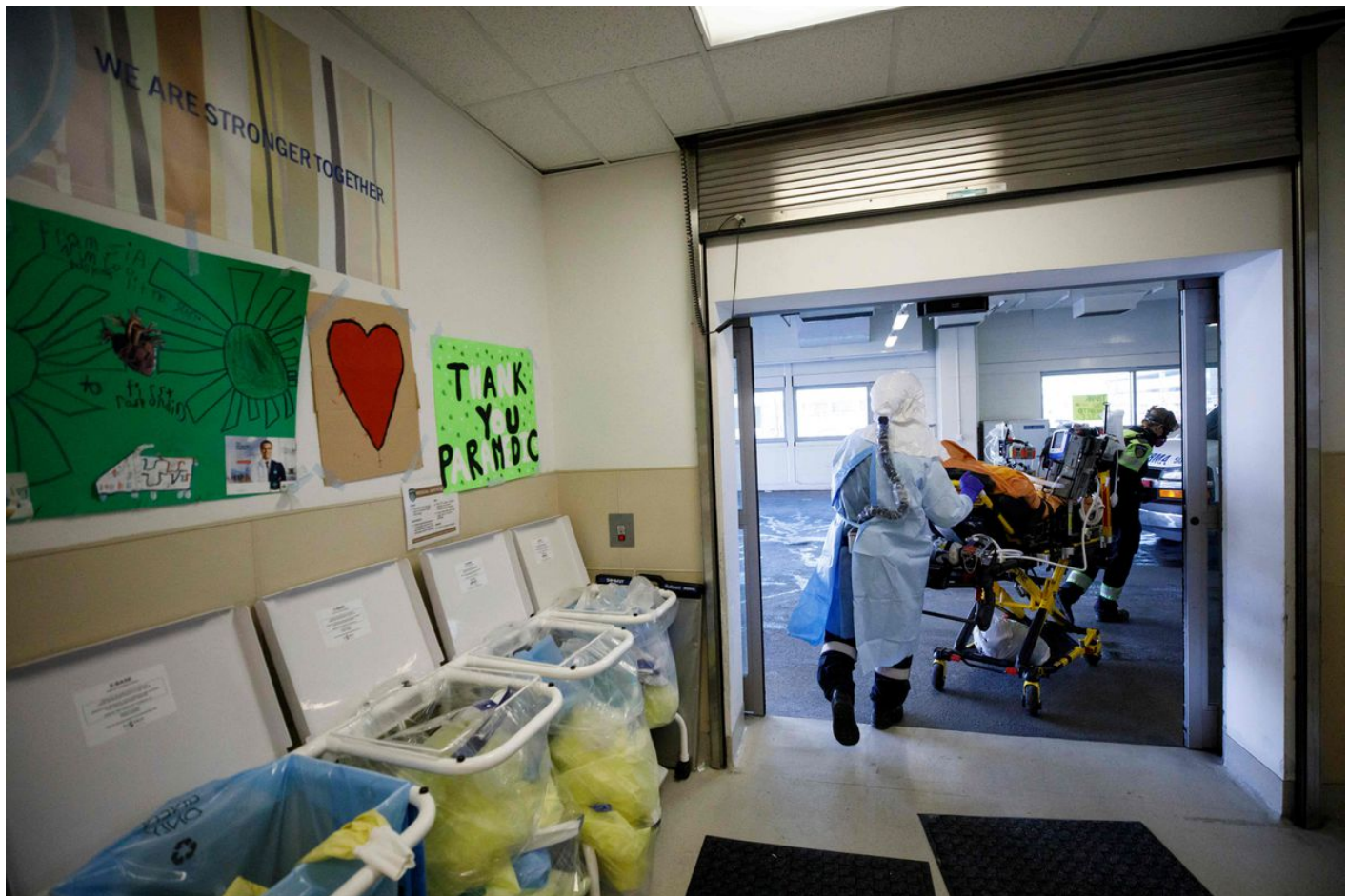
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Paramedics and health care workers transfer a patient from Humber River Hospital's Intensive Care Unit to a waiting air ambulance as the hospital frees up space in their ICU unit, in Toronto on April 28, 2021.

COLE BURSTON/AFP/GETTY IMAGES

A slight but curious decline in the prevalence of known variants of concern in Ontario's latest COVID-19 epidemiological report has some infectious-disease experts saying the province should be prepared for the rise of a more tenacious version of the coronavirus, even as more people are vaccinated.

The report, released on Monday, shows that in all cases that have been genetically tested, the fraction that were caused by a known variant of concern has levelled off after a three-month rise and appears to be trending downward as of mid-May. One possible explanation is that the three variants being tested for – which originated in Britain, South Africa and Brazil – are being outcompeted by an even more transmissible variant that the tests have not directly identified.

“The fact that [the trend] has not only stabilized but started to go down suggests ... there's something that is essentially displacing the known variants of concern,” said Ashleigh Tuite, an epidemiologist at the University of Toronto's Dalla Lana School of Public Health.

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The obvious candidate is B.1.617.2, a sub-branch of the variant previously associated with India. Early estimates indicate it could be as much as 50-per-cent more transmissible than the B.1.1.7 variant, currently the dominant form of the virus in Canada. That variant is, similarly, about 50-per-cent more transmissible than the older version of the coronavirus it overtook this past spring. That takeover largely fuelled Canada's third wave of the pandemic.

Dr. Tuite said that based on data she has seen, not all of which are public, the B.1.617.2 variant could already account for one in 10 of all new cases in Ontario. If so, this would be in keeping with what is happening in Britain, where the B.1.617.2 variant is gaining on its predecessors with a speed that has some scientists there calling for a delay in a plan to end restrictions on June 21.

While Ontario's situation is still something of a guess, it is reminiscent of what the province faced in late February, as the second wave of the pandemic was in decline and public-health measures were being lifted, along with hopes the end was in sight. Instead, cases quickly began rising again.

The question of whether this pattern could be repeated in the coming weeks lies in the background as the province weighs its own reopening plans, including whether students can return to classrooms for the final weeks of the term.

“It adds an element of uncertainty that makes the decision far less straightforward,” Dr. Tuite said.

At the same time, some key differences suggest the next month will look substantially different than March and April. Most important is that the growing availability of vaccines means more than half of all those eligible in Canada have had a first dose. For older age groups, second-dose appointments are arriving.

Those second doses could not come too soon, based on a British study last month that found the B.1.617.2 variant chopped the effectiveness of the Pfizer and AstraZeneca vaccines to a dismal 33.5 per cent after a first dose. Protection against the new variant after a second dose rose to about 90 per cent and 60 per cent respectively for the two vaccine types.

The fact that the variant associated with India is more nimble at getting around vaccines should not come as a surprise, said Andrew McArthur, a researcher specializing in the genomics of viruses at McMaster University.

Dr. McArthur noted that, unlike earlier variants of concern, this one arose as vaccines were being rolled out in India – the situation Canada is moving toward.

“We have a lot of people with partial vaccination and we don’t know what pressure that puts on variants and whether they can find something to take advantage of,” he said.

One important clue is that the new variant features a set of mutations that is quite different from the ones that are common to the other three variants. That makes B.1.617.2 harder to spot because it is invisible to rapid screening tests that were designed to pick up those others.

All three of the previously known variants share a mutation that is thought to improve the virus’s ability to attach to human cells. The genetic makeup of the new variant suggests it may be succeeding because it can more easily complete the entry process.

“Clearly, there was another path to becoming a variant of concern,” Dr. McArthur said. “Lord knows how many more are out there.”

All of this underscores the importance of continued genetic testing of COVID-19 cases, particularly during the period before most Canadians have received their second vaccinations.

Catalina Lopez-Correa, who heads CanCOGen, a national effort to sequence and share viral genomes, said the current strategy includes prioritizing samples from those who get COVID-19 after vaccination or are reinfected after a previous bout.

The good news, she said, is that with cases declining overall, provinces can test a large proportion of the total cases to look for signs of the new variant taking hold.

“We are able to sequence a higher percentage [of total cases],” Dr. Lopez-Correa. “That means you can detect B.1.617.2, but it also means you have more opportunities to detect any other potential new variants.”

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